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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,075	08/29/2000	Steven Saban	83-96A	9196

23713 7590 09/26/2003

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EXAMINER
NOGUEROLA, ALEXANDER STEPHAN

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/650,075	SABAN ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *54 and 69-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *54 and 69-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

1. Applicant's amendment of June 30, 2003 does not render the application allowable.

Response to Arguments

2. Applicant's arguments filed June 30, 2003 have been fully considered but they are not persuasive. With respect to the rejections based upon the Thormann et al. reference, individually or in combination with secondary references, Applicant argues that his invention is patentably distinct from that of the Thormann et al. reference because (a) "when the Thorman reference is considered as a whole it is not clear what it teaches with respect to additivity of electrode signals as a function of spacing", and (b) "Thorman at most teaches that electrodes having both larger width than is claimed by Applicant and larger gaps between electrodes (e.g., widths of 100 micrometers and a gap of 760 micrometers) exhibit "additive" or "near-additive" behavior. Thus, in a sense Thorman can be seen to teach that one can obtain additive properties by increasing electrode width in combination with increasing electrode gap size."

The examiner respectfully disagrees. Whatever apparent ambiguity may exist in the Thormann et al. reference the conclusion of the reference is clear: "The important point to be established in this work is the near additivity of linear arrays with their individual sensing elements (*Table III*) and the ability to utilize attractive features of microelectrodes with transient techniques both in presence and absence of deliberately added electrolyte" (second column on page 2769). The Thormann et al. reference clearly teaches that the width, height, and spacing of

the electrodes in the electrode array will affect the limiting current of the sensor, although how each of these parameters will independently affect the sensor response was not discernable (last sentence in the first column on page 2767 bridging to the second column). *Table II* in the Thormann et al. reference shows that the gap between the electrodes were not necessarily increased proportionally with an increase in electrode width. Array III, for example has electrodes having four times the width of the electrodes in Array I, but over thirty time the gap space. In short, the Thormann et al. reference teaches that additivity is desirable, the factors that will affect additivity, and how to achieve additivity or near-additivity, which is to select the appropriate width, thickness, and gap space for the electrodes in the electrode array.

Perhaps more importantly, the dimensions of the electrodes sufficient for additivity of signals from the electrodes in the array of sensing elements substantially depends on the analyte and measurement conditions. Applicant has overlooked his own admittance of knowledge in the art at the time of the invention that the diffusion length of the analyte is a function of the duration of the measurement and the analyte's diffusion coefficient (page 2 of the specification). So, enlarging the gap space between electrodes will obviously reduce the adverse effect of analyte diffusion upon the additivity of the signals from the sensing elements and the necessary gap space will depend at least in part on the analyte's diffusion coefficient. Thus, Applicant's claim language does not necessarily exclude Array I of *Table II* in the Thormann et al. reference as, again, the appropriate gap length for additivity of signals depends on the sample.

Applicant's independent claims largely hinge on the limitation of "wherein the size of each gap is selected such that in operation, the signals produced by said microband electrodes in said array are additive." This is a desired result. Applicant has submitted a declaration allegedly

showing additivity of sensing elements in a sensing array, but the results showing additivity are for a sensor array having electrodes with a different width, thickness, and spacing than those mentioned in the Thormann et al. reference and Applicant *used a different analyte and sample solution than used by Thormann et al.* Applicant has not demonstrated that the sensor configuration cited in his declaration has additivity for the analyte and measurement condition recited in the Thormann et al. reference nor has Applicant shown that none of the arrays in *Table II* of the Thormann et al. reference will show additivity with the analyte and measurement condition upon which his declaration was based.

Status of the Rejections Pending since the Office action of December 31, 2003

3. All previous rejections are withdrawn.

Double Patenting

4. Applicant is advised that should claim 83 be found allowable, claim 84 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Suggested Claim Language for Greater Clarity

5. Claim 69

(a) lines 1-2: insert a new line; -- (a) providing a microband electrode array sensor that has --;

(b) line 13: delete "which method comprises the steps of";

(c) line 14: replace "(a)" with -- (b) --; and

(d) line 15: replace "(b)" with -- (c) --.

6. Claim 81

(a) lines 3-4: insert a new line; -- (a) providing a microband electrode array sensor that has --;

(b) line 16: insert -- ; -- after "channel"; and

(c) insert new last line: -- (b) making an electrochemical measurement on a sample. --.

Claim Rejections - 35 USC § 112

7. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

a) Claim 54, line 16: "wherein said microband electrode array sensor" should be deleted.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 54, 69-77, and 91-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thormann et al. ("Voltammetry at Linear Gold and Platinum Microelectrode Arrays Produced by Lithographic Techniques," Anal. Chem. 1985, 57, 2764-2770).

Addressing Claim 54, the Thormann et al. reference teaches a method of utilizing a microband electrode array sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material on top of the substrate, the layer of insulating, material having a first edge ("E" in Figure 2);

the first edge of the substrate and the first edge of the insulating material aligned to form a single edge (Figure 2);

a plurality of microband electrodes between the substrate and the layer of insulating material, a surface of each of the microband electrodes exposed at the single edge ("M" in Figure 2), wherein the exposed surface of each of said microband electrodes has a width less than about 25 micrometers and a thickness less than about 25 micrometers (array I in *Table II*); and

a plurality of gaps, one gap between each of two adjacent band electrodes, the method comprising the steps of

(a) contacting the sensor with a sample suspected of containing an analyte ("Results and Discussion" on page 2766); and

(b) scanning the voltage from a negative voltage to a positive voltage such that the scanned voltage is of a range where the analyte should be oxidized or reduced at the microband electrode (Figure 3)

wherein the insulating material is silicon dioxide (cover plate "D" in Figure 2, which is on top of the substrate, is glass).

The Thormann et al. reference does not specifically mention the gaps between the electrodes are sufficiently large to prevent substantial overlap of diffusion layers.

First, this limitation is a desired result that critically depends on the analyte's diffusion coefficient; that is, the analyte and sample, and so this limitation does not actually limit the gap length.

Second, this limitation is also arguably implied by the teaching that with a 30 μm gap length there is only a small interaction between adjacent sensing elements (first column on page 2767 of the Thormann et al. reference).

Third, in any event, the Thormann et al. reference also teaches that with a large gap length the response at each sensing element becomes additive within experimental error (first column on page 2767). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the gap length large enough so that the response at each sensing element becomes additive within experimental error; that is, there is no substantial overlap of diffusion layers, because then the overall response of the sensing elements will be

directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers.

Last, Applicant himself has acknowledged it was known in the art at the time of the invention that the diffusion length of the analyte is a function of the duration of the analyte and the nature of the analyte (page 2 of the specification). So enlarging the gap space between electrodes will obviously reduce the adverse effect of analyte diffusion upon the additivity of the signals from the sensing elements and the necessary gap space will depend at least in part on the analyte's diffusion coefficient Thus, Applicant's claim language does not necessarily exclude Array I of *Table II* in the Thormann et al. reference as, again, the appropriate gap length for additivity of signals depends on the sample.

Addressing Claim 69, the Thormann et al. reference teaches a method of utilizing a microband electrode array sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material having a first edge ("E" in Figure 2) aligned with the first edge of the substrate (Figure 2); and

a plurality of microband electrodes between the substrate and the layer of insulating material (Figure 2);

the microband electrodes having a surface exposed at the first edges of the substrate and the insulating layer (Figure 2), the insulating material forming a plurality of gaps (Figure 2), wherein there is one gap between each of two adjacent microband electrodes (Figure 2), wherein the exposed surface of each of the microband electrodes has a width less than about 25

micrometers and a thickness less than about 25 micrometers (array I in *Table II*), which method comprising the steps of

(a) contacting the sensor with a sample suspected of containing an analyte ("Results and Discussion" on page 2766); and

(b) applying a voltage to the electrodes of the sensor and scanning the voltage over a range such that the analyte should be oxidized or reduced at the microband electrode (Figure 3).

The Thormann et al. reference does not specifically mention that the size of each gap is selected such that in operation, the signals produced by the microband electrodes in the array are additive.

First, this limitation is a desired result that critically depends on the analyte's diffusion coefficient; that is, the analyte and sample, and so this limitation does not actually limit the gap length.

does not actually limit the gap length.

Second, this limitation is also arguably implied by the teaching that with a 30 μm gap length there is only a small interaction between adjacent sensing elements (first column on page 2767 of the Thormann et al. reference).

Third, in any event, the Thormann et al. reference also teaches that with a large gap length the response at each sensing element becomes additive within experimental error (first column on page 2767). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the gap length large enough so that the response at each sensing element becomes additive within experimental error; that is, there is no substantial overlap of diffusion layers, because then the overall response of the sensing elements will be

directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers.

Last, Applicant himself has acknowledged it was known in the art at the time of the invention that the diffusion length of the analyte is a function of the duration of the analyte and the nature of the analyte (page 2 of the specification). So enlarging the gap space between electrodes will obviously reduce the adverse effect of analyte diffusion upon the additivity of the signals from the sensing elements and the necessary gap space will depend at least in part on the analyte's diffusion coefficient Thus, Applicant's claim language does not necessarily exclude Array I of *Table II* in the Thormann et al. reference as, again, the appropriate gap length for additivity of signals depends on the sample.

Addressing Claim 70, scanning voltage form a negative voltage to a positive voltage is shown in Figure 3.

Addressing Claim 71, the insulating material is silicon dioxide (cover plate "D" in Figure 2, which is on top of the substrate, is glass).

Addressing Claims 72 and 73, the exposed surface of the each microband electrode has a thickness of 0.1 micrometer (Array I in *Table II*).

Addressing Claim 74, the exposed surface of the each microband electrode has a width of 15 micrometers (Array I in *Table II*).

Addressing Claims 75 and 76, an adhesion layer between the insulating layer and the microband electrodes is shown in Figure 2. Also note the chromium adhesion layer disclosed in footnote *b* to *Table II*.

Addressing Claim 77, as seen in Figure 2 the substrate is planar.

Addressing Claim 91, the Thormann et al. reference teaches a microband electrode array sensor for detecting the presence or measuring the concentration of analytes in a sample, the sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material having a first edge ("E" in Figure 2) aligned with the first edge of the substrate (Figure 2); and

a plurality of microband electrodes between the substrate and the layer of insulating material (Figure 2); and

the microband electrodes having a surface exposed at the first edges of the substrate and the insulating layer (Figure 2), the insulating material forming a plurality of gaps (Figure 2), wherein there is one gap between each of two adjacent microband electrodes (Figure 2), wherein the exposed surface of each of the microband electrodes has a width less than about

25 micrometers and a thickness less than about 25 micrometers (array I in *Table II*).

The Thormann et al. reference does not specifically mention that the size of each gap is selected such that in operation, the signals produced by the microband electrodes in the array are additive.

First, this limitation is a desired result that critically depends on the analyte's diffusion coefficient; that is, the analyte and sample, and so this limitation does not actually limit the gap length.

does not actually limit the gap length.

Second, this limitation is also arguably implied by the teaching that with a 30 μm gap length there is only a small interaction between adjacent sensing elements (first column on page 2767 of the Thormann et al. reference).

Third, in any event, the Thormann et al. reference also teaches that with a large gap length the response at each sensing element becomes additive within experimental error (first column on page 2767). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the gap length large enough so that the response at each sensing element becomes additive within experimental error; that is, there is no substantial overlap of diffusion layers, because then the overall response of the sensing elements will be directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers.

Last, Applicant himself has acknowledged it was known in the art at the time of the invention that the diffusion length of the analyte is a function of the duration of the analyte and the nature of the analyte (page 2 of the specification). So enlarging the gap space between

electrodes will obviously reduce the adverse effect of analyte diffusion upon the additivity of the signals from the sensing elements and the necessary gap space will depend at least in part on the analyte's diffusion coefficient Thus, Applicant's claim language does not necessarily exclude Array I of *Table II* in the Thormann et al. reference as, again, the appropriate gap length for additivity of signals depends on the sample.

Addressing Claims 92 and 93, the exposed surface of each microband electrode has a thickness of 0.1 micrometer (Array I in *Table II*).

Addressing Claim 94, the exposed surface of each microband electrode has a width of 15 micrometers (Array I in *Table II*).

Addressing Claim 95, the insulating material is silicon dioxide (cover plate "D" in Figure 2 of the Thormann et al reference, which is on top of the substrate, is glass).

10. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thormann et al. ("Voltammetry at Linear Gold and Platinum Microelectrode Arrays Produced by Lithographic Techniques," Anal. Chem. 1985, 57, 2764-2770) as applied to claims 54, 69-77, and 91-95 above, and further in view of Slater et al. (WO 95/10040 A1).

The Thormann et al. reference does not mention integrating the sensor into a channel.

The Slater et al. reference teaches a method for performing electrochemical measurements on a sample (the abstract) comprising the step of contacting a sample suspected of containing an analyte with a microband electrode array sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material on top of the substrate, the layer of insulating material having a first edge (page 5, lines 11-20);

the first edge of the substrate and the first edge of the insulating material aligned to form a single edge (Figure 2);

a plurality of microband electrodes between the substrate and the layer of insulating material, a surface of each the microband electrodes exposed at the single edge (page 5, lines 21-28 and Figure 3); and

a plurality of gaps, one gap between each of two adjacent microband electrodes (page 5, lines 21-28 and Figure 3); and

wherein the sensor is integrated into a channel (Figure 3).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the microband electrodes in a channel as taught by the Slater et al. reference in the invention of the Thormann et al reference because as taught by the Thormann et al. reference the size of each gap is selected such that in operation, the signals produced by the microband electrodes in the array are additive (first column on page 2767). So then the overall response of the sensing elements will be directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers.

Alternatively, if each sensing electrode is to perform a different measurement then by having sufficiently large gaps each measurement will be truly independent and thus more accurate.

11. Claims 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thormann et al. ("Voltammetry at Linear Gold and Platinum Microelectrode Arrays Produced by Lithographic Techniques," Anal. Chem. 1985, 57, 2764-2770) as applied to claims 54, 69-77, and `91-95 above, and further in view of Williams et al. (US 5,460,710).

Addressing Claim 79, the Thormann et al. reference does not mention having a plurality of layers of microband electrode array sensors separated from each other by insulating material. Williams et al. disclose a microband electrode array having an array of sensors separated from each other by insulating material in which additional sensors may be provided in an additional layer of insulating layer (Figures 5 and 6 and col. 3, ll. 35-47 and col. 12, ll. 35-45). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have a plurality of layers of microband electrodes separated from each other by insulating material as taught by Williams et al. in the invention of Thormann et al. because then the sensor will not be too wide. By stacking the electrode arrays the overall height of the sensor will, of course, increase, but the sensor width can be kept fixed. This will make the sensor more convenient for sensing in regions with constrained access.

Addressing Claim 80, as seen in Figure 2 of the Thormann et al. reference (and Figure 6 of Williams et al. reference) the substrate is planar.

12. Claims 81-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thormann et al. ("Voltammetry at Linear Gold and Platinum Microelectrode Arrays Produced by Lithographic Techniques," Anal. Chem. 1985, 57, 2764-2770) in view of Slater et al. (WO 95/10040 A1).

Addressing Claim 81, the Thormann et al. reference teaches a method of utilizing a microband electrode array sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material having a first edge ("E" in Figure 2) aligned with the first edge of the substrate (Figure 2); and

a plurality of microband electrodes between the substrate and the layer of insulating material (Figure 2); and

the microband electrodes having a surface exposed at the first edges of the substrate and the insulating layer (Figure 2), the insulating material forming a plurality of gaps (Figure 2), wherein there is one gap between each of two adjacent microband electrodes (Figure 2), wherein the exposed surface of each of the microband electrodes has a width less than about 25 micrometers and a thickness less than about 25 micrometers (array I in *Table II*).

The Thormann et al. reference does not specifically mention that the size of each gap is selected such that in operation, the signals produced by the microband electrodes in the array are additive.

First, this limitation is a desired result that critically depends on the analyte's diffusion coefficient; that is, the analyte and sample, and does not actually limit the gap length.

Second, this limitation is also arguably implied by the teaching that with a 30 μm gap length there is only a small interaction between adjacent sensing elements (first column on page 2767 of the Thormann et al. reference).

Third, in any event, the Thormann et al. reference also teaches that with a large gap length the response at each sensing element becomes additive within experimental error (first column on page 2767). It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the gap length large enough so that the response at each sensing element becomes additive within experimental error; that is, there is no substantial overlap of diffusion layers, because then the overall response of the sensing elements will be directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers.

Last, Applicant himself has acknowledged it was known in the art at the time of the invention that the diffusion length of the analyte is a function of the duration of the analyte and the nature of the analyte (page 2 of the specification). So enlarging the gap space between electrodes will obviously reduce the adverse effect of analyte diffusion upon the additivity of the signals from the sensing elements and the necessary gap space will depend at least in part on the analyte's diffusion coefficient Thus, Applicant's claim language does not necessarily exclude Array I of *Table II* in the Thormann et al. reference as, again, the appropriate gap length for additivity of signals depends on the sample.

The Thormann et al. reference does not mention integrating the sensor into a channel.

The Slater et al. reference teaches a method for performing electrochemical

measurements on a sample (the abstract) comprising the step of contacting a sample suspected of containing an analyte with a microband electrode array sensor comprising

a substrate having a first edge (Figure 2);

a layer of insulating material on top of the substrate, the layer of insulating material having a first edge (page 5, lines 11-20);

the first edge of the substrate and the first edge of the insulating material aligned to form a single edge (Figure 2);

a plurality of microband electrodes between the substrate and the layer of insulating material, a surface of each the microband electrodes exposed at the single edge (page 5, lines 21-28 and Figure 3); and

a plurality of gaps, one gap between each of two adjacent microband electrodes (page 5, lines 21-28 and Figure 3); and

wherein the sensor is integrated into a channel (Figure 3).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the microband electrodes in a channel as taught by the Slater et al. reference in the invention of the Thormann et al reference because as taught by the Thormann et al. reference the size of each gap is selected such that in operation, the signals produced by the microband electrodes in the array are additive (first column on page 2767). So then the overall response of the sensing elements will be directly proportional to the concentration of analyte. The overall sensor response will not have to be corrected for inaccuracy due to overlapping diffusion layers. Alternatively, if each sensing electrode is to perform a different measurement then by having sufficiently large gaps each measurement will be truly independent and thus more accurate.

Addressing Claims 82-84, cyclic voltammetry is taught in Figure 2 of the Thormann et al reference.

Addressing Claim 85, the insulating material is silicon dioxide (cover plate "D" in Figure 2 of the Thormann et al reference, which is on top of the substrate, is glass).

Addressing Claims 86 and 87, the exposed surface of each microband electrode has a thickness of 0.1 micrometer (Array I in *Table II*).

Addressing Claim 88, the exposed surface of each microband electrode has a width of 15 micrometers (Array I in *Table II*).

Addressing Claims 89 and 90, an adhesion layer between the insulating layer and the microband electrodes is shown in Figure 2. Also note the chromium adhesion layer disclosed in footnote *b* to *Table II*.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (703) 305-5686. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Alex Noguerola

Alex Noguerola

9/24/03

Primary Examiner

TC 1700